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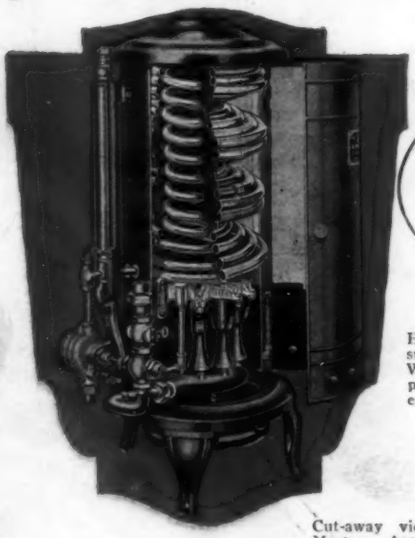
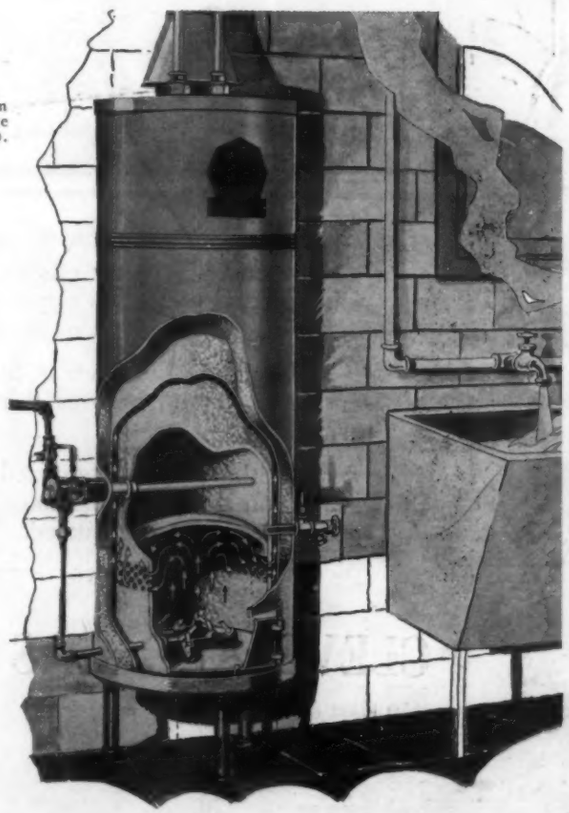


Hoffman No. 3 Instantaneous Automatic Water Heater showing pre-heating coil (patents applied for).

HOFFMAN INSTANTANEOUS Automatic Gas Water Heaters and MASTER Automatic Storage Systems



Cut-away view of Hoffman Master Automatic Storage System (patents applied for).

More gallons of hot water per foot of gas!

More years of unfailing service per dollar of cost!

Those are the high points in the "reason why" arguments which give both types of Hoffman Automatic Gas Water Heaters outstanding prominence.

The "Master," a new and revolutionary achievement, is the only self-contained hot water storage system (patents applied for) having a combustion chamber integral to the tank.

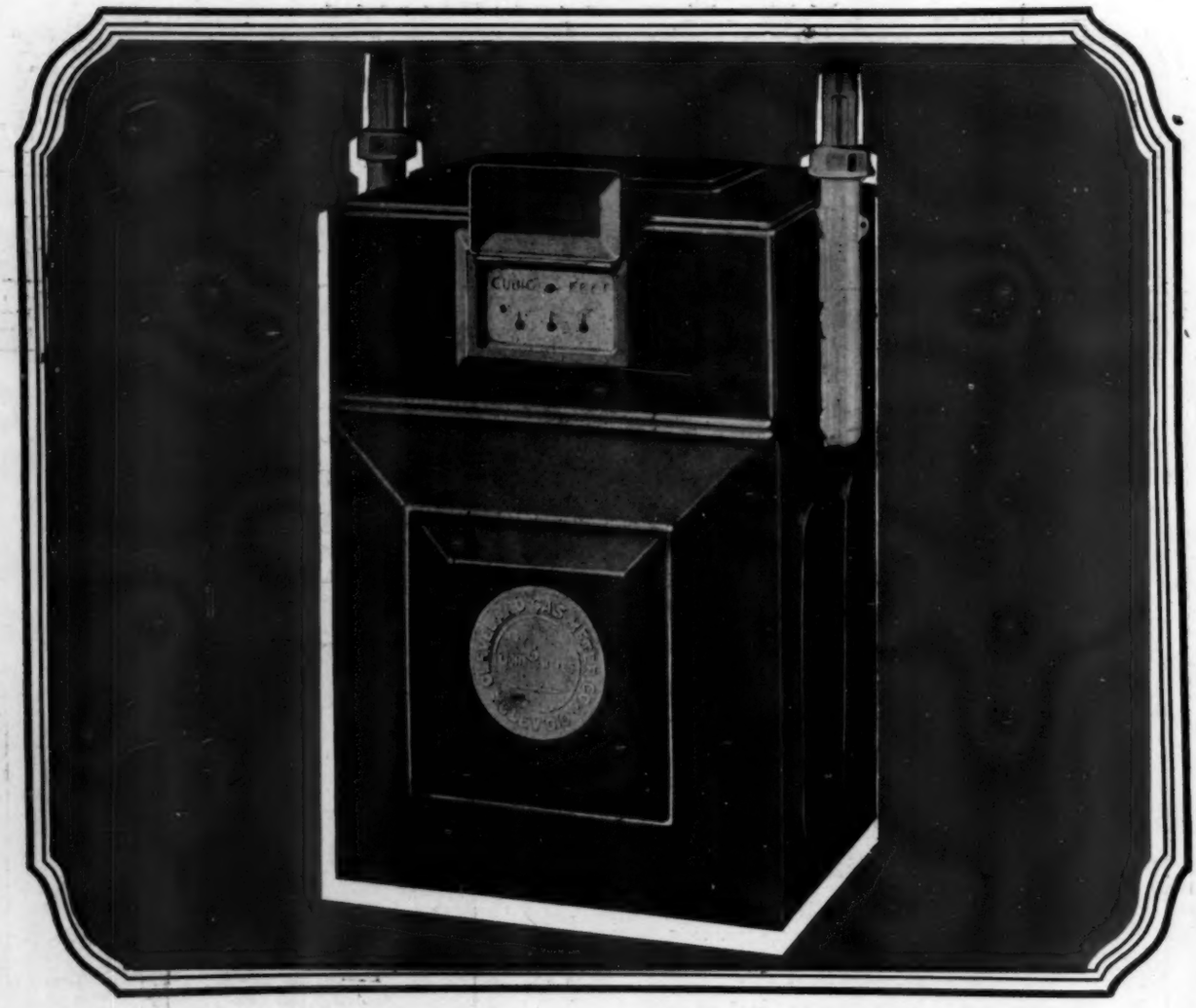
The No. 3 Instantaneous Automatic Water Heater is the only heater of its type to eliminate the destructive action of condensation and increase the water heating efficiency by the use of a pre-heating coil (patents applied for).

May we send you *complete* information concerning these *perfected* water heaters? Just send us your name and address.

THE HOFFMAN HEATER COMPANY

1701-15 Eighteenth Street Louisville, Kentucky

Advertising Index, page 68 Index to Contents, page 4



Dependability in a gas meter means a constant measure of reliable service; this is appreciated by the Superintendent, the Meter-reader and the Consumer.

Cleveland Gas Meters have a reputation for dependable service, the result of over thirty years' experience in manufacturing.

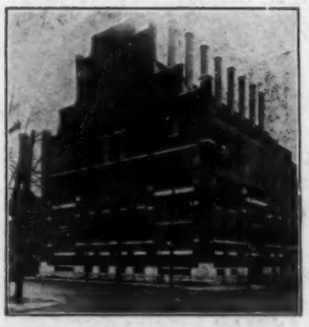
Our thoroughly organized and completely equipped factory assure you that the workmanship, materials, accuracy and general efficiency are unequaled.

"A" and "B" Types Meter Repairing

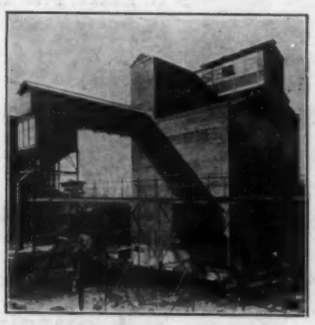
CLEVELAND GAS METER COMPANY

2180 East 65th Street **Cleveland, Ohio**

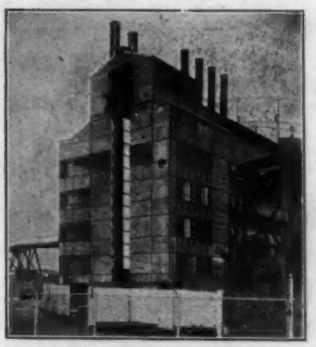
GLOVER-WEST
Vertical Retorts



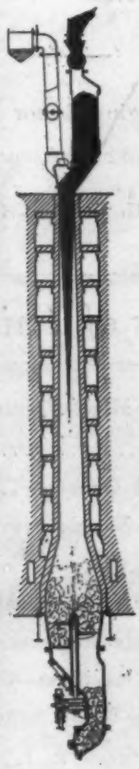
Toronto, Ont.
5,000,000 cu. ft. per day



Fargo, N. D.
800,000 cu. ft. per day



Portland, Me., 2nd Plant
750,000 cu. ft. per day



Fall River, Mass.
1,600,000 cu. ft. per day

Plants *Completed* in 1926

Also Completed—Stamford, Conn., 1,100,000 cu ft.; Buenos Aires, 3,500,000 cu. ft.

Under Construction

Springfield, Mass.	2,800,000 cu. ft.	Santiago, Chile	3,000,000 cu. ft.
Toronto, Ont.	600,000 cu. ft.	Pawtucket, R. I.	1,060,000 cu. ft.
		Faribault, Minn.	400,000 cu. ft.

WEST GAS IMPROVEMENT CO.
Builders of Coal Gas Plants
441 Lexington Ave. New York.

American Gas Journal

SIXTY-SEVENTH YEAR

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AMERICAN
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Vol. 126. No. 20 **NEW YORK, MAY 14, 1927** **Whole No. 3632**

Some Experiences With High Pressure Systems of Gas Combustion

R. J. Phelon

Industrial Engineer, Worcester Gas Light Co.

IT has been said regarding the sale of gas for industrial purposes that the sale starts with the signing of the order. The industrial man is responsible for the proper installation of the appliance and instruction of the operators in the correct method of operation, and if anything goes wrong from that time on it should be his responsibility to see that it is rectified. The gas company cannot look to the manufacturer for free service on equipment. No manufacturer can afford to do this without getting an excessive price for his product, but it must be done and equipment must be kept operating efficiently if the business is to be retained.

Naturally, during the past few years, in which the industrial phase of our business has been stressed so strongly, the industrial gas engineer has had his share of grief and is partial to any piece of equipment or method of applying gas which is simple and which will continue to give efficient service with the minimum of attention.

High Pressure Simplifies Piping

The high pressure combustion system simplifies piping and makes possible single valve control and automatic proportioning of the air gas mixture which may be permanently set and which, in turn, permits of the accurate temperature control and correct furnace atmospheres required in the heat treatment of steel. It also lends itself readily to automatic control, which at present is being called for in most heat treating furnaces. It is natural, therefore, that high pressure installations are on the increase.

High pressure distribution lines through the industrial section of his territory are a boon to the industrial gas engineer, but, unfortunately, at least from the industrial man's standpoint, high pressure gas is not often available and if the high pressure system is to be used a compressor or booster must be installed in the customer's plant to raise the pressure of the gas to approximately ten pounds.

Any industrial gas engineer who has followed that line of work during the last four or five years has passed through the throes of the development stage in the matter of compressors.

The writer's first experience with high pressure gas compressors began with a vane type of compressor equipped with a by-pass valve to return the excess gas to the inlet of the compressor, thereby maintaining a constant live pressure.

Difficulty with Small Compressors

The smaller sizes of this compressor gave good satisfaction for a period of time, but finally the wear plates on the vanes became worn as did the casing and a loss in efficiency becomes apparent, the compressor often losing capacity to an extent that the pressure on the line could not be maintained. This type of compressor was not satisfactory, as it did not stand up under continuous service.

Next, a type of compressor in which water was used as a compressing agent was adopted. This made a "sweet" running outfit and could be obtained mounted on a bed plate, direct connected to an electric motor, making a very compact unit. With this equipment it was sometimes difficult to keep the lines free of water and in some territories it did not stand up in hard service. This might have been due to the character of the water supply, or something peculiar about the chemical composition of the gas. At any rate, in the writer's experience, these compressors soon lost efficiency; the casing becoming eroded between the inlet and exhaust ports, allowing the gas to by-pass.

The next step was the adoption of the reciprocating compressor which, while not obtainable in very small sizes, gave promise of long life and simplicity of repair, if necessary. When first tried out the customary unloader used with air compressors was tried, but with poor results, as it did not hold a uniform line pressure. Later a loaded by-pass valve was installed which gave the uniform pressure required, but had the disadvantage of requiring power to compress the full cylinder capacity at all times,

the waste gas being returned through the by-pass to the intake.

Weighted Throttle Valve

Later this by-pass was replaced with a weighted throttle valve in the intake line which closed entirely when the required line pressure was reached. The reciprocating compressor with the intake throttling device is the present accepted standard for high pressure installations and seems to meet all requirements.

The installation is not as compact as some of the other types and a receiving tank is required to eliminate pulsations, but for constant heavy duty requirements it stands up, and is reliable, which takes one worry off the industrial man's shoulders.

One annoyance not uncommon when compressors are used is the collapse of the meter caused by the meter inlet being closed with the compressor running, or failure to open this valve before starting the compressor. This occasionally occurs in spite of the most explicit instructions given to operators and foremen, with the result that the meter is often reduced to junk and the furnace is shut down till another meter can be installed.

Use of Tags

The tags, whose wordings are reproduced here, were designed with the idea of eliminating this condition and are being used in Worcester on all industrial meters which supply high pressure installations. It has also been made standard practice to install valves on the outlets of the meters and cocks on the inlets, so that if it is desired to shut off the gas over a week-end or holiday the outlet valve will be used and the inlet always left open. In this case no harm would result should the compressor be started, by mistake, before the gas is turned on.

The tags used on the main gas entrance and meter inlet are printed on red cardboard and those attached to the outlet and the compressor are on yellow cardboard.

By the use of these tags, as well as verbal instructions to operators and foremen, it is hoped that further damage to meters from this cause will be eliminated.

The wording on the red tags is as follows:

> MAIN GAS INLET
> Never close this valve except in case of emergency. If this valve should be closed with the compressor or furnaces in operation or if the compressor and furnaces should be started with this valve closed serious damage to the meter will result. Worcester Gas Light Co.

> GAS INLET
> Never use this shut-off unless meter is to be removed or in case of emergency.
> Worcester Gas Light Co.

The yellow tags read as below:

> Do not start this compressor unless you are sure that the gas valves or cocks on inlet side of meter are wide open.
> Worcester Gas Light Co.

> GAS OUTLET
> Use this valve when gas is to be shut off.
> Worcester Gas Light Co.

¤ ¤ ¤ ¤

LABORATORY CHIEF SEES MIXED GAS AS COMING NECESSITY

The day is not far distant when many communities will be faced with the necessity of using natural gas mixed with manufactured gas, R. M. Conner, director of the National Gas Testing Laboratory, located in Cleveland, told the Natural Gas Association's convention here today.

"A development of vital interest to natural gas men is the research work recently undertaken by the gas laboratory on mixed gas," the speaker said.

"The diminishing supply of natural gas in some territories and the advent of large quantities of the by-product coke oven gas in certain manufactured gas sections, makes this subject one of the most important facing the gas industry today.

"To the natural gas companies who are faced with the necessity of having to change their gas supply, scientists inform us we have a sufficient supply of coal available to last for 1,000 years. Although coal is a practical gas making fuel, its use in solid form is accomplished by so many disagreeable features that in the not far distant future there certainly will be restrictive legislation passed against its general use. Doctors and municipal authorities in many of our large eastern cities are now seiously considering the smoke evil.

"Quite a number of cities have smoke ordinances and these are sure to become more restrictive as the public learns of the deleterious effects of smoke and its attendant gases on the human system. Considerable evidence has already been collected in Baltimore and elsewhere to show that the curve of respiratory diseases almost exactly parallels the smoke curve. Further than this, it is becoming generally recognized that sunshine is a necessary adjunct to good health, all of which seems to point to the fact that gas will eventually become the generally accepted domestic fuel."

Mr. Conner, in referring to the laboratory, declared it was established in the interest of better public service. He said the laboratory purposed to eliminate cheap and inferior types of appliances and to elevate standards of gas utilization. The project thus far represents an investment on the part of the gas industry of approximately a quarter of a million dollars.

Gas Cooks Dinner for 5,000 Guests

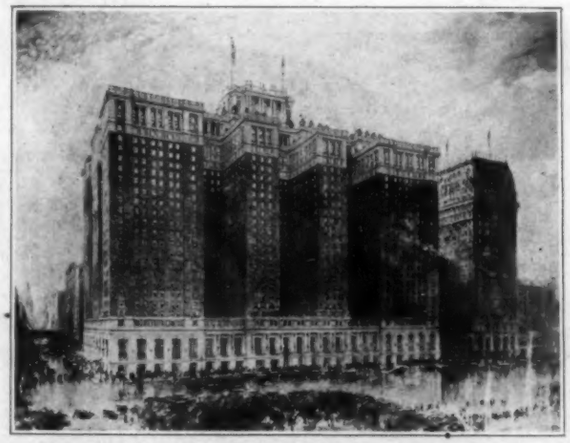
World's largest hotel has modern gas equipped kitchen

Thomas J. Gallagher

Hotel and Restaurant Division, The People's Gas Light and Coke Co., Chicago.

THE largest hotel in the world, with all gas kitchens, with three thousand guest rooms, exhibit room 35,000 square feet in area—a hotel with a grand ballroom where five thousand guests can be served dinner at one sitting—that is the new Hotel Stevens, Chicago, where will be held the October meeting of the American Gas Association.

Description of facilities for comfortably and adequately housing this event may make a story of great moment to gas men in this "all gas" achievement.



Hotel Stevens

First, then, shall we view the kitchens of the mammoth new Hotel Stevens, bearing in mind that the layout and equipment of these kitchens of the catering department were regarded as one of the most important problems to be solved in the construction of the Stevens Hotel. Ernest J. Stevens, vice-president and general manager, taking account of his years of practical experience at the Hotel La Salle, toured the country to get the last note in proper equipment for "cooking in volume," and the best talent in the country was called in to help him decide on the space provided, the proper equipment to insure maximum service and economy in operation. The Peoples Gas Light and Coke Company's hotel and restaurant engineers rendered valuable assistance. Approximately eight weeks' time was consumed in writing the specifications, and five months were required to prepare the details and the designs for the culinary department, there being over 500 items of special equipment. Albert Pick & Company, Chicago, prepared the specifications for the kitchens in their entirety, and designed and installed all of the equipment.

Equipment of Monel Metal

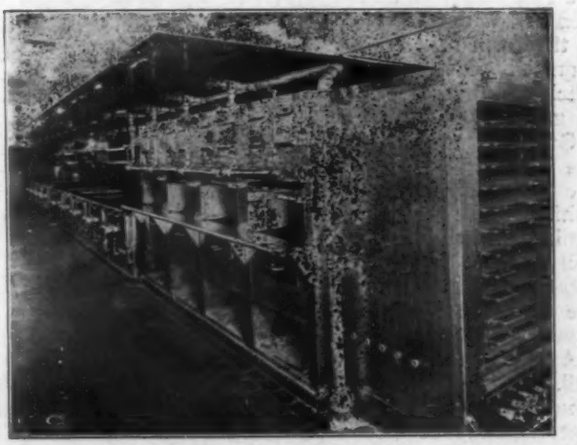
Practically all of this equipment is constructed of monel metal of extra heavy gauges and the equipment as constructed is the heaviest and most serviceable that has ever been placed in a hotel and is designed to withstand the hard usage to which it will be subjected.

As stated, the Hotel Stevens kitchens are "all-gas." All the ranges, broilers, roasters and bake ovens are gas-fired, besides any number of special gas-fired appliances. There are 36 sections of hotel gas range, including Vulcan, Garland and Traub. There are twelve 30-inch gas-fired broilers, seven 30-inch gas-fired roast ovens, five 10x12 Middleby-Marshall bake ovens, one special Alaska bake oven, besides any number of hot plates, chicken singers and waffle irons, all on gas.

It is well, perhaps, to discuss together the place where the food is served and the place where it is prepared.

Starting at the bottom, therefore, we find the coffee shop, or lunch room, located in the basement with direct stairways from the ground floor, equipped with marble counters, table height, with chair seats.

Between the sections of counter are elaborate refrigerated display cases. The lunch counter has a seating capacity of 157 and the service is provided by a separate service kitchen extending the entire



View In Main Kitchen

width of the lunch room, permitting the use of different patterns of china and silver service.

The main dining room, on the second floor, has a seating capacity of approximately 1,000 persons, and the grand banquet hall, as stated, will seat over 2,300 persons.

A main kitchen and banquet kitchen are located between the main dining room and banquet hall and the dishwashing department for the pantry service extends into the service building, which faces Wabash Avenue. Located on the second floor of the service building is the general storeroom and the bakery. One of the novel features of the banquet service is the utilization of portable trucks for salad service. A special refrigerator has been provided which will accommodate seven of these trucks. The trucks are 2 feet wide by 6 feet long, and are nine shelves in height. The entire salad set-up for a large banquet can be placed on these trucks, held in the refrigerator until ready for service, when the trucks are placed in position in the banquet service kitchen and the salad, crisp and cold, direct from the refrigerators, served to the guests.

Banquet Kitchen Has Unique Arrangement

The banquet service equipment for hot foods is a direct departure from that employed in most large hotels and was designed by Mr. Ernest J. Stevens. Another departure from accepted practice in most hotel kitchens in America is the location of the ranges and broilers in the center of the kitchen with cooks' tables on each side, forming a hollow square. This is the type of layout employed in many large European hotels with great success.

On the third floor is a service kitchen for the service of numerous private dining rooms and small banquet halls. In the service building, on the same floor, connected by a bridge over the alley, are located the ice cream making departments and sugar work departments. The dishwashing equipment for this service kitchen is also located in the service building.

Those who plan to attend or to exhibit at the A. G. A. convention in October will be interested in the fact that this mammoth hotel is the consummation of an ideal, one of which was to build a utility in the form of a hotel which would combine all the required services developed to the highest point of efficiency under one roof, serving every possible kind of gathering.

Of importance to the coming event, therefore, is the big exhibit hall, 35,000 square feet in area, on the basement level of the Hotel Stevens. In this exhibit hall are installed seventy cabinets at convenient locations. In these cabinets, the exhibitor will find for his use gas, electricity, compressed air, steam, hot and cold water, and telephone. There are drains in 70 locations. Thus the exhibitor can develop the use of these utilities to the maximum.

A 20-ton capacity elevator serves the exhibition hall. It is eleven feet wide and twenty-nine feet long. Large trucks with their load of exhibition material may be driven onto the elevator and into the exhibition room under their own power. Thus they may unload with greatest economy of time and labor. This elevator operates from grade to the ball room level on the second floor, and to the exhibit hall in the basement. The basement level is reached by all of the fourteen resident elevators in the hotel.

A "Private" Meeting Place

To the best of our knowledge, one feature of the Stevens Hotel operation is not found in any other hotel. It is a feature that will meet the popular approval of all of those who attend the American Gas Association convention, in that it insures the utmost privacy in the operation of their own functions. The guests may enter the hotel at the Eighth Street entrance and immediately inside find the check room and rest room areas—calculated to care for 5,000 guests. He may then proceed a few paces to a broad private stairway entrance, rising to the ball room level, without the necessity of going through any department of the hotel. Another stairway leads him down to the exhibition hall.

View In Banquet Kitchen

The ball room as well as the exhibition hall will be employed for exhibits at the Gas convention. The larger convention meetings will be staged in the Eighth Street Theater, which is owned by the Stevens Hotel Company, and which may be reached by a bridge from the ball room.

Bearing in mind then that there will be many meetings of sections and many small conferences, relief will be expressed at the information that these will be splendidly accommodated on the third floor, which contains seven ball rooms, ranging in size from a seating capacity of from 100 persons to 700 persons. In addition to these, there are private dining rooms of various sizes, each of which has individuality in its construction and decoration.

The facilities of the main exhibit hall will be complemented by those on the fifth floor, which is entirely given to merchandise display rooms, are equipped with tables for display of merchandise and comfortable davenports and easy chairs for use of

exhibitors and their customers. These rooms are also equipped with Roll-away beds. There is an extensive and distributive lighting system for every room, as well as a full complement of service outlets for auxiliary lighting.

The typical guest floors of the Stevens Hotel range from the sixth to the twenty-fifth, inclusive, and contain 134 rooms on each floor. Every floor is served by two floor clerks, working in shifts with the assistance of a stenographer. The floor clerks' desks, in the Stevens, are different from those found in any other hotel in the country—particularly in the point that two positions are provided, for the floor clerk and the stenographer.

Every floor clerk will be the official contact between the hotel management and the guest. It must be borne in mind that each floor ordinarily would, in many cases, constitute a complete hotel of 134 rooms.

Mr. Stevens Tells Why "All-Gas"

Ernest J. Stevens, vice-president and general manager of the Hotel Stevens, stated that the new hotel was made "all-gas" as to fuel as the result of an extended investigation, in which he toured the whole country to find out what was latest and best in hotel operation.

"We have the largest private power plant in the world," said Mr. Stevens, "from which we generate all of our own electricity. But, when first cost of fuel is considered, whether bought or generated by ourselves; considering further the cost of maintenance and upkeep, the expense of replacement and heating units; having in mind also the matter of reliability and instantaneous supply of necessary heats—we decided that gas was the fuel to employ.

"Gas men of the country will no doubt be interested in seeing this all-gas installation, and we invite them cordially to visit our kitchens while they are attending the convention. They will be interested, we believe, also in the general layout and equipment of these kitchens. They are quite welcome to carry away any ideas which they may pick up."

Service Building Separate

An interesting feature is the service building, having a frontage of 80 feet on Wabash Avenue, and extending to the alley. It is connected to the hotel on every floor by bridges. The Service Building has, on the first floor, a driveway, under roof, permitting deliveries of supplies, exhibit material and guests' property, without possibility of damage from the elements.

Refrigerating equipment, the laundry, and the bake-shop (the latter equipped exclusively with gas-fired bake ovens) are the principal features of the Service Building.

The carpenter shop, upholstery department, sewing room, ice cream department, candy room and valet department are also found here.

One room in the Service Building is equipped with playground apparatus, toys, books and other equipment of interest to children who may be left under supervision, by parents.

Another feature of interest is the specially designed facilities for care of domestic pets, with separate kitchen equipment.

Two floors and the roof of the Service Building are devoted to "play" for adults, including gymnasium, bowling alley, billiards, etc.

A BOOKLET EVERY GAS MAN SHOULD HAVE—AND STUDY

No gas man who is interested in serving the industry and, in turn, the public can afford to be without a copy of the booklet "First Aid and Resuscitation in Gas Asphyxiation," published by the American Gas Association.

This is of a size convenient for slipping into the vest pocket and contains information relative to the resuscitation of those overcome by gas that is concise, well illustrated and to the point. It has been compiled from the efforts of the Commission on Resuscitation from Gas Asphyxiation, a group of physicians from several of our leading medical institutions as well as the Bureau of Mines.

A Handkerchief is not a Gas Mask

The booklet goes on to explain what takes place in the body when carbon monoxide is breathed into the lungs and how one should protect himself when entering an atmosphere containing this gas. Care of the patient, when to give artificial respiration and when to give inhalation, as well as other necessary information, constitute the various chapters.

Your gas company will supply you with a copy gratis.

A New Partnership

Good progress being made on investigation of application of gas to the baking industry

MANY fine contributions to the welfare of the baking industry are coming from sources which only a few years ago were far removed from the bakery. For several years a number of industrial fellowships have been carried on at the American Institute of Baking. The first of these fellowships was established by Du Pont de Nemours & Co. and under it a thorough study of the effect of lactic acid in dough fermentation was made.

Another fellowship provided by the Sunland Sales Corporation made it possible for the Institute to do much work in the development of better formulas for raisin bread. Other fellowships which are still being carried on provide means for studying at the institute the application of dry skimmed milks and cerelose sugar in the production of bread.

American Gas Association Provides Fellowship

The latest fellowship to be established is that provided by the American Gas Association. The research undertaken by the American Gas Association at the American Institute of Baking concerns the problems common to both industries. Up to this time the bakers have had no authentic information relating to the cost and effects of the different fuels or of the characteristics of the different types of ovens.

The fellowship at the American Institute of Baking is an expression from the gas industry to the baking industry of its desire to collect all basic facts relating to the oven problems and to use those facts as the basis of rendering and developing a more efficient service. With that understanding, a program of research has been set up to determine first those facts which concern the different types of fuels. For example, does the type of heat as represented by an indirect coke-fired oven differ from the type of heat generated by a gas flame or by an electric heating element as far as the bread itself is concerned? After these determinations have been carried through to a conclusion, the next phase of the research will concern more particularly the problems relating to the oven construction, such for example as materials, baking chamber dimensions, the atmospheres, and in the case of the conveyor ovens the temperature gradients and atmospheres.

The facts brought out by these tests will not be left merely in technical form, but will be substantiated or disproved on a commercial scale and under shop conditions. It is not expected that these results will receive an immediate acceptance on their face value. However, it is hoped that universal acceptance will be given to the principle that this method of co-ordinating the work between these important industries is the correct basis for progress and development.

Many Problems Involved

There are so many problems involved in a study of this kind that the results will not soon be available for publication. The gas and baking industries will, however, be interested in a brief description of the ovens in which the different types of heat are applied to bread baking.

In investigating the proper method of applying heat and the effect of various conditions in the baking process, it is necessary to so control conditions as to vary one factor at a time. Accordingly an experimental oven was built, having three small ovens in the one shell, each having a different type of heat application.

The outer shell is approximately seven feet long by five feet deep by three feet high, standing about three feet from the floor. The oven compartments themselves are fourteen inches wide, twenty-seven inches deep by approximately twenty-one inches high. They were designed to hold one strap of four loaves each.

The outer shell is insulated by two to five inches of insulating brick and there is nine inches of fire brick between each oven. A transit slab is suspended in the center of each oven as a hearth.

In recording the data the ovens have been numbered from left to right as one faces them. No. 1 oven has a diaphragm burner in the center of the top and of the bottom. The flues are a few inches to the left of the top burner. The heat therefore is primarily by radiation from incandescent surfaces, although the flue gases from the lower burner come up around the bread.

No. 2 oven is heated primarily by convection. A tunnel burner placed toward the back of the right end of the oven discharges its flue gases under the hearth. These gases come up around the bread and supply the heat for its baking. The flues are in the center line of the top of the oven.

No. 3 oven is heated by an indirect system. Lava tip burners outside the oven fire into U-bends placed near the bottom and the top of the oven. Heating therefore is by convection currents in the oven atmosphere and by low temperature radiation from the pipes themselves. No products of combustion enter this oven and there is no opening other than the oven door.

Pyrometers Provided

Each oven is equipped with a pyrometer couple. These enter at the back of the ovens at such height as to be only a short distance above the loaves. Temperatures are read on an indicating pyrometer.

A separate gas meter is provided for each oven, with special dials enabling the gas consumption to

be read to the cubic foot. In order to facilitate regulation of the burner mixtures and of the heat supplied surface combustion, low pressure inspirators are used on all burners.

The ovens are at present constructed of fire brick. It is expected, however, that they will be rebuilt from time to time to test the effect of other materials on the product. The design is such as to facilitate tests of various conditions in the oven and to allow ready changes in the ovens themselves.

R. A. Wight, a chemical engineer with much experience in fuel problems, has been assigned to the investigation by the American Gas Association. Malcolm Reeser of the institute staff represents the institute in the carrying on of the studies.

Mr. Wight received the B. of S. degree in chemical engineering from Armour Institute of Technology in 1907. In 1918 the degree of chemical engineer was conferred upon him. He has had many years of experience as a chemist and efficiency engineer. For five years he was assistant engineer of the Illinois Commerce Commission, working chiefly on problems of gas service. Before coming to the institute Mr. Wight was conducting research on bake oven problems for the Surface Combustion Co.

Mr. Reeser is a graduate of the Pennsylvania State College and was then an instructor in the School of Baking of the William Hood Dunwoody Institute. He was later in charge of the cereal laboratories of flour mills in Joplin, Mo., and Johnson City, Tenn., joining the institute staff in 1925.

Applying Reason to Public Utility Problems*

Advantages and necessity of obtaining the facts

Frank Milhollan
Bismarck, N. D.

(Concluded from May 7th Issue.)

While state and city commissions are administrative bodies, they must at times exercise quasi-judicial powers. Sound discretion and judgment must be applied to ascertained facts. While statutes designed to confer regulatory powers upon State and city commissions are primarily enacted for the protection of the public, it is nevertheless true that in carrying out the provisions of such statutes the commissions are presumed to protect the interests of all. In other words, to deal fairly with all parties to a proceeding. The action of commissions in undertaking to administer a law solely from the standpoint of a representative of the consumer rather than as a representative of all interests would indicate a failure to understand their true position, for the presumption is that all public officers will discharge their duties honestly and in accordance with the rules of law. State commissions or city commissions may be said to be administrative agents of the legislature charged with the duty of performing the acts authorized by statute. When the legislature delegates to State or city commissions the power to prescribe the rates to be charged by public utilities, the presumption is that such commissions will act in conformity with constitutional provisions.

In a very interesting case involving an appeal from a decision of the North Dakota Commission, the Supreme Court of our State enunciated principles which I have referred to. The court said:

"The powers which have been conferred upon the board of railroad commissioners of North Dakota are quasi-judicial. They belong to that twilight zone which lies between the ministerial or judicial, and the legislative, which it is so difficult to bound and define, but which it is nevertheless so necessary to recognize. Its recognition, indeed, is necessary to all scientific, social and legal development. Such acts and duties are, it is true, often spoken of as being 'ministerial,' but this is only for the purpose of distinguishing them from the actions and duties which belong solely to the courts, and which cannot be either delegated by or taken from them. * * * Ministerial acts may be divided into two classes—first, those which are ministerial solely and involve no judgment or discretion, and, second, those which are quasi-judicial."

In the performance of our duties we endeavor to differentiate between those cases which require us to sit in a judicial capacity and those in which we appear as advocates. It is inconceivable that a reasonable man can appear in the dual capacity of both judge and advocate. It is, therefore, essential that State and city commissions recognize the distinction between those duties which are purely administrative and those which are quasi-judicial in character.

Unpopularity of Rate Increases Universal

While the problem in one State may differ somewhat from those arising in other States, the underlying causes may be traced to the same source. This is but another way of saying that human nature is

*Paper read before the Mid-West Gas Association Convention at St. Paul, Minn., April 22, 1927.

much the same the world over. If you are one of those unfortunate individuals who understand human nature and the fickleness of the public in general, you will get along just as well in one community as in another. Rate increases are just as unpopular in North Dakota as they are in Iowa, or in any other State, while regulation is generally regarded as rate revision downward. As a matter of fact, we encounter few instances where public utilities themselves are willing to concede that rates are too high. If a utility proposes an increase in rates, it refers to the matter as an adjustment, whereas if the commission orders a change in rates it is referred to as a drastic reduction. But it is all interesting and there is at times a humorous side to it.

It is surprising to find the comparatively small number of people—some of them among the public utility men—who understand the principles of regulation and the matters which must be taken into consideration in determining and fixing rates. This accounts for the fact that much of our time is taken up with purely educational work. By this I mean devoting time to answering questions at public hearings as to procedure and defining the rights of the respective parties.

A Ludicrous Question

I recall one gas rate hearing which also involved a service complaint. The utility had applied for an increase in rates and the city answered by filing a complaint alleging that the service was inadequate and petitioned the commission to make a thorough investigation. When the matter came on for hearing the engineers, of course, referred to B.t.u.s, and upon cross examination the city attorney wanted to know whether it was the B.t.u.s which caused the offensive odor in the house. Now this city attorney was apparently perfectly sincere. The fact was that the service was very poor, due to poor fuel, and the odor in the homes was almost inexcusable.

One of the most common problems that all of us have to contend with is the tendency of the meters to fail to observe the speed regulations. Since the advent of the automobile, meters also seem to run too fast. Seriously, the matter of testing meters is a very important one, and we could discuss this subject at great length. The public is entitled to know that meters are recording accurately the amount of gas or electricity consumed. Not only should meters be tested at regular intervals, but the result of the test should be placed in the hands of the particular consumer and a method of appeal for verification purposes should be available. It makes for friendly relations. State commissions usually adopt rules governing the testing of meters. We are frequently called upon to assist communities in determining the accuracy of meters. Sometimes they are found to be fast and other times they may be found to be slow. We had one amusing case a few weeks ago while our legislature was in session. One of the officers of that body complained to me that the owner of the electric utility in his community had no facilities for testing meters and he was curious to know whether his monthly bill would be reduced if meter test was made. At my suggestion the meter was brought to our engineering department and the test showed that the meter was approximately 75 per cent slow. I did not have the heart to disclose the real condition, but suggested that the meter was running slow.

Application of Reason Will Solve Problems

Any public service commissioner who has been regulating rates and service for a number of years could write an interesting book relating his experiences. They would, no doubt, convince you and the consuming public that if reason had been applied to the facts many of the seemingly perplexing problems would have been easily solved. It is my great privilege to know personally practically every State commissioner. I know that they are honestly endeavoring to render service to the public. At times they perform their duties under the handicap of insufficient funds, but a careful analysis will reveal the fact that they have accomplished remarkable results. You are, no doubt, aware that there is a new movement under way to initiate a national campaign for municipal ownership of public utilities on the plea that commission regulation has proven unsatisfactory. Such a campaign can only be successful by misrepresenting the facts.

It is gratifying to find the interest manifested by your organization in the solution of the problems to which I have made reference. A great responsibility rests upon you, and I feel certain that you are approaching your problems with an open mind and a determination to serve the public.

In conclusion, may I be permitted to say that public utility men need to be reminded occasionally that by reason of the position they occupy in a community their acts are scrutinized very closely. An error on the part of a representative of a public utility resulting in a real or fancied wrong, or in being too zealous for the interest of those politically ambitious, may create a prejudice against the utility which years of sincere effort cannot restore.

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GAS RANGE MUST PASS 160 TESTS TO WIN A. G. A. SEAL

One hundred and sixty tests for safety and efficiency of operation must be successfully passed before a gas range is permitted to bear the official seal of approval of the appliance testing laboratory of the American Gas Association, reports the New Jersey Public Utility Information Committee.

The essential tests require approximately forty-five hours to complete and include the actual performance of the range under all conditions of service. The safety tests include a fire-hazard test with all burners at full flame, and a leakage test in which gas is sent into the burners and fittings at sixteen times normal pressure.

Broiler and oven doors are examined to determine their safety in the event of a gas back-fire.

Gas Engineering Chair, Johns Hopkins University, Baltimore, Md.

(Abstract of Committee Report presented before Annual Convention, Southern Gas Assn., Atlanta, Ga., April 19-21, 1927)

IT was at the sixteenth annual convention of the Southern Gas Association, held in Augusta, Ga., April, 1924, that we were able to conclude upon the definite establishment of this course, for it was at that time when this association through the co-operation and financial help of its membership finally made this project a reality by completing the full amount of the subscription necessary to carry on the work for five years. Three years having elapsed, it is very evident that you will be interested to learn that the investment made in this respect has so far proved an unqualified success.

Dr. Wilbert James Huff

It is our firm belief, therefore, with the passing of this time since starting the proposition and with the evidence of the amount of excellent work performed since its founding, there ought be no hesitancy whatsoever in asserting that the Gas Engineering course at Johns Hopkins has already proven of great merit and value. Recognition of the accomplished work and of the advantages afforded by its continuance to the entire gas industry for the future is being accorded by many in our business who can foresee the tremendous growth and the manifold and important problems with which we are confronted in the expansion of our industry.

Beginning in the fall of 1924 with only three day students, growing in the following fall of 1925 to fifteen students, the course has now an enrollment of twenty-seven full time students and sixteen night school students, or a total of forty-three. Of these, in the regular day course, six are graduate and twenty-one under-graduate students. Thirteen of the under-graduates are attending through scholarships established by the following companies:

Consolidated Gas, Electric Light & Power Co., Baltimore, Md., three scholarships.

Southern Gas & Power Corp., Philadelphia, Pa., three scholarships.

The C. H. Geist Co., Philadelphia, Pa., two scholarships.

Washington Gas Light Co., Washington, D. C., two scholarships.

The Tampa Gas Co., Tampa, Fla., one scholarship.

Mobile Gas Co., Mobile, Ala., one scholarship.

Philadelphia Suburban Gas & Elec. Co., Chester, Pa., one scholarship.

Through the courtesy and co-operation of Mr. Walter R. Addicks, senior vice-president of the Consolidated Gas Co., New York, two scholarships are to be given by this company, effective for the scholastic year 1927-1928.

In a letter under date of March 16, 1927, through the solicitation of Mr. Charles M. Cohn, vice-president of the gas company at Baltimore, a third scholarship was secured from the Washington Gas Light Co., becoming effective in the fall of this year.

It is also gratifying to report that encouraging responses have been recently received from several other gas companies expressing their interest in this work and that some of them are contemplating the support of the Gas Chair by contributing scholarships for the next year.

While we note with considerable satisfaction the increase in the number of scholarships during the past year, yet it is incumbent upon us to bring to your attention the fact that most of these were given by companies outside of our territory. It is to be hoped that several of the concerns that we have been in touch with in the south on this subject will soon give us a favorable reply and thereby enable us to add their names to the roll of supporters of this most worthy undertaking.

Research Work

In last year's report of this committee you were apprised of the research work that was being conducted under the auspices of Dr. Wilbert J. Huff, professor of the Department of Gas Engineering at Johns Hopkins, and during the intervening period a number of other research problems have been engaged upon which no doubt shall prove to be of great help and value to the entire industry.

Research projects in connection with graduate work are also undertaken when supported by industrial and scientific organizations. The special research fund which was underwritten by the Con-

solidated Gas, Electric Light & Power Co. of Baltimore, the Consolidated Gas Co. of New York, the Rochester Gas & Electric Co. of Rochester, and the Iroquois Gas Corporation of Buffalo, has been renewed for the present year, and extends up to December 14, 1927. This research comprises a study of the present processes of gas manufacture, utilization of plant facilities and the production of by-products.

The gift of Mr. Rufus C. Dawes and the Mobile Gas Co. has been awarded for the current year to Mr. C. J. Milbourne, graduate student, who is now engaged in research work dealing with the methods for the rapid automatic analysis of gas mixtures.

It may be well to remind the membership again that the university offers four graduate scholarships in the engineering department, one of these being set aside specially for the gas engineering students. This is being done to encourage advanced study in research and engineering and such candidates as have the proper standing can apply for such scholarships at any time by addressing the Dean of Engineering at the institution.

The degree of bachelor of engineering is conferred on the satisfactory completion of the under-graduate course.

Important Feature of Course

One of the most important features of the course is the requirement that each student while at the university must spend a part of his summer vacation in actual employment in the gas industry. At least six months during the four years course must be so employed. Experience with this plan has proved its great value. Students return to the university with renewed interest, increased appreciation of personal responsibility and a realization of the importance of individual effort.

Among the events of interest during the past year should be mentioned a visit to the university of Messrs. George B. Cortelyou, president, and Walter R. Addicks, senior vice-president of the Consolidated Gas Company of New York City on December 6, 1926. At the time of this visit Mr. Cortelyou addressed the advanced students in the school of engineering and spoke of the interest that had been aroused in the gas industry by the new work and the research carried on at Johns Hopkins. Mr. Addicks is expected to deliver one of the annual lectures on engineering practice to this student body during the latter part of this month. He will appear as a representative of the American Gas Association and will speak on some phase of gas engineering.

Another matter of importance which transpired during the year was the appointment of Dr. Wilbert J. Huff as official delegate from the State of Maryland to the international conference on bituminous coal, held at Pittsburgh, November 15 to 18, 1926. Dr. Huff is also serving as a member of the chemical committee of the American Gas Asocition and is actively engaged in the work of one of the sub-committees of this chemical committee on capital costs for the production of synthetic ammonia, motor fuel and methanol.

Thus far this report constitutes a general resume of the work that has been going on at the university since the inception of this course, the results achieved, and it gives you an idea what may be expected for the future if the proposition is to expand in relative ratio to that encountered in the past three years.

Technical Education of Young Gas Men Vital

The proper technical education of young men for the gas industry is of such vital significance and has been previously discussed in connection with this work, that it would seem to be superfluous to dwell upon the subject at length. The problems before the gas industry today are probably more far-reaching and comprehensive in their scope than ever before in its history. The development of the use of industrial gas, and gas for house heating involves considerations so large and varied as to require radical changes in its production and distribution.

Furthermore, there are many problems of utilization which require the closest kind of study before making recommendation. Gas is an ideal fuel in many processes where uniform quality is required and that is a feature the industry must satisfactorily solve. Uniformity of supply is always essential and in many cases this becomes the deciding factor in the selection of gas over other fuel.

To those who have studied carefully the problems of the gas industry it must be quite evident that it is still in many respects in the development stage, and that it will make progress and attain results only in proportion to the efforts put forth by the men of the industry in research and scientific investigation of these problems and the intelligent application of the results to regular commercial operation.

It should therefore become our duty, in order to keep step with the march of progress of other industries and to be able to manufacture and sell our product at the lowest possible price, consistent with good service, at the same time safeguarding the interests of the investor, that we concentrate our thought and dedicate our effort upon further constructive plans to assist with renewed pledges and additional money the great work started at Johns Hopkins. This would prove essential and contributory to our retaining for the future the eminent position of public trust and public service that we now occupy.

It would appear needless for your committee to repeat that the Gas Chair at Johns Hopkins within its three years of existence has passed the experimental stage and has convincingly demonstrated to possess limitless valuable opportunities for the entire gas industry, and that it therefore shall be filling a national want in this respect not heretofore recognized. No progressive gas company having the best interests of its clientele at heart can afford to remain outside of its distinguishing sphere of influence and benefaction.

The contributors to the support of this chair, whether large or small, are going to receive the return of their investment many times over and in very many cases far beyond their present expecta-

tions. Consequently this is not an appeal for any charitable or philanthropical cause, but is purely and simply a plain business proposition.

Much Publicity Work Being Done

During the past year several thousand letters soliciting scholarships, explanatory circulars, articles for the technical press on the subject, and reprints of these have been compiled and sent out through the offices of the Consolidated Gas Company of Baltimore without any expense whatsoever to your association. It is to Mr. Charles M. Cohn, vice-president, and his able assistant in the educational department, Mr. E. B. Luce, manager, that your committee wishes to convey its sincere appreciation and profoundest gratitude. Through their continued interest and labor was it possible to obtain the increased number of scholarships, also including those which become effective 1927-1928.

It would be incompatible with the completeness of this report to omit thanking all of the parties who have become interested in this project. Therefore we wish to conclude by extending our appreciation and thanks to the donors, to the university authorities, particularly Dr. Huff and Dr. Whitehead, our secretary, Mr. J. P. Connolly, who through the publication of the S. G. A. Bulletin has kept the matter before our membership, and finally the gas trade papers that have kindly co-operated in broadcasting through their columns news on the Gas Chair throughout the United States.

Respectfully submitted: Charles M. Cohn, L. I. Pollitt, R. J. Hole, Walter Whetstone, S. E. Linton, E. S. Dickey, R. C. Hoffman, Jr., P. H. Gadsden, J Frank Stacey, J. A. P. Crisfield, E. L Richa, Chairman.

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GAS HEAT SAVES MONTH IN BUILDING TIME FOR NEW BOSTON STRUCTURE

What is believed to be the first building heated by gas while under construction is the new office building of the Boston Consolidated Gas Company located in that city, remarks the New Jersey Public Utility Information Committee.

That company has definitely entered upon a sales policy advocating the use of gas in house heating and is following out its own recommendations for the use of gas as fuel by installing gas-fired boilers to heat its own building when completed. As a large part of the construction had to be done during the winter time it was decided to heat the structure with gas instead of a temporary heating equipment while the building was progressing.

The ease and efficiency of that type of heating were so marked that the completion of the building has been advanced fully a month ahead of its original schedule. That is said to be due to increased efficiency of the workmen and elimination of the many delays usually caused by extremely cold weather.

TAKING THE GAMBLE OUT OF BUSINESS*

Co-Operative Market Research Decreases Industry's Unknown Factors and Points Way to Industrial Prosperity

By Charles F. Abbott,
Executive Director, American Institute of Steel Construction, Inc.

A FEW days ago I was looking through a copy of one of the leading publications edited in the interests of the advertising profession. What I found in that magazine gives a cross-section of a changing industrial situation that is of startling significance.

On page one of the publication was an announcement that an advertising campaign on behalf of the State of Iowa would soon be undertaken to tell the East about Iowa's products. Page two contained an article describing the plans of the ice manufacturers to resist the encroachment of electric refrigerators upon their market.

On page seven was another announcement of a projected advertising campaign. All the Norwegian packers of herrings, sardines and other fishes, it was stated, were about to begin a co-operative campaign in this country. Finally there was an article emphasizing the success of the advertising campaign of the Copper and Brass Research Association.

Here is no picture of a multitude of individual concerns competing with each other, such as we would have seen twenty years ago. The picture we have is of industries competing with industries, of states competing with states, of the industries of a whole nation competing with the industries of other nations.

What has brought about the competitive condition we have with us in the third decade of the Twentieth Century? It is not hard to put our fingers on the answer.

New Markets Difficult to Find

Problems of finance and production have been practically solved, but with their solution we have been presented with a third problem. We are finding it more and more difficult to find new markets to consume our increased production. We are finding it steadily more difficult to hold the markets we have.

Pretty nearly every industry once had what it considered its natural market. Who, for instance, would have dreamed that rayon and silk would wrest away huge sections from the domain of King Cotton, that the prosperity of the leather industry would be seriously affected by the use of the hundred and one substitutes for leather that are now offered for sale?

(Continued on page 493)

*An address delivered before the American Institute of the City of New York, May 5, 1927.

WINDOW DISPLAY ADVERTISING

That sells more gas to pleased customers

R. M. Martin

Display Manager, Consolidated Gas Company of New York

"Everybody's doin' it, doin' it, doin' it." Perhaps the same germ inspired these words in the song popular around 1911 as in the case of the above 1927 Window Display Advertisement. In any event, this display offers food for thought for the manufacturers who are still using raw fuels in their plants.

In brief, this advertising effort is the result of a gas company's desire to acquaint its public with the fact that the industrial consumption of gas in New York City is enormous.

Absolutely no suggestion is made that the observer should use gas in his heat treating processes. No individual appeal is present. This display is simply a graphic picturization of facts. For results we depend solely on the thought that 4,500 manufacturers of the size indicated could not be wrong.

Then, of course, there is the feminine observer to be appealed to. As she is almost invariably a domestic gas consumer she should know that the gas company is more than that represented by so many gas ranges, space heaters and water heaters. Do you, yourself, know that gas fuel is used for a percentage of each heat treating operation in every manufacturing industry in New York?

As it is reasonable to believe the consumer of one thousand or two thousand cubic feet of gas per month is interested in knowing about others using fifteen or twenty times this amount of gas fuel, we can include this display among those having public relations value.

As The Journal Views It

WINDOW DISPLAY

It is by no means a far cry back to the day when gas company windows were an absolute nonentity, in so far as being properly used for display purposes was concerned. Rather they were veritable depositories for dust and dirt, with the sales floors but little better.

Commercial managers, in the old days, doubtless contended that appliances were not artistic in appearance and therefore did not lend themselves to attractive display. With this subterfuge they were content to remain in the class with bowling alleys and petty storekeepers. Eventually a start was made to dress up the display windows in a manner commensurate with the size and importance of the industry.

As is usually the case, such a beginning was shot through with a procedure that gave the impression that the display man or commercial manager was making up for lost time. Consequently, appliances were crammed into the window in a hodge-podge, hurly-burly fashion that was at once both banal and eminently boresome. It took considerable time for the thought to penetrate that a play should be made upon the use of a particular appliance rather than merely showing the bare appliance as such.

The idea is an old one with many businesses. Like advertising, it is concerned with the raising of a desire in the mind of the public to possess the article being featured. Such a desire is best stimulated by showing what the appliance will do to aid in accomplishing some end or task with facility and comfort.

Many of the larger companies are giving the display window the attention that is due it and, as a matter of fact, are using it not only to feature appliances, but also to foster good public relations and educate the community.

Unfortunately the smaller companies are not in a position to pay for the hire of a window display manager, and as a result cannot be unduly censured if their windows carry the hall mark of Main Street. It was with this thought uppermost that we started, several weeks back, the page on Window Display by Mr. Martin. It is felt that much inspiration working toward a practical end will be gained from this series by the smaller gas companies—to mention nothing of some of the larger ones.

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NOW THAT WE HAVE MADE THE START

It seems that the gas industry has about concluded its exhaustive tests and investigations on the gas refrigerator, and having found it to be entirely satisfactory are organizing their sales organizations to actively push this new appliance. In the interim many are doubtless speculating as to how much success will attend such sales efforts. In short, what will be the nature of the competition between the gas and electric unit? We hold that, while such competition might not be of a "knock-down-and-drag-out" nature, still it is something worth giving deep consideration.

In the past the various appliances for the use of gas and electricity have after a fashion followed channels of a well-defined nature without a great deal of intense competition. Of course, there is a hazy borderland where the one form of energy overlapped the other by way of competition, but this constituted an almost negligible minimum. In the case of the refrigerator, however, we face a rather unique situation.

Here we have two units looking exactly alike, accomplishing the same end, each sold at about the same price as the other, BUT the one—the gas-fired refrigerator—operating at a considerably lower cost to the customer than the other. More, the gas unit is mechanically simpler and less liable to get out of order than the electric. Offhand, the issue would seem to be clean cut; just like getting a haircut at one place for a dollar with one make of shears and for seventy-five cents at another with a different brand of scissors. But the electric unit has a running start, is backed by a tremendous national publicity and enjoys the favor of the housewife. If we can equal this effort, our problem is an easy one.

Now that we have made the start, let's do the job right.

Erratum—On page 467, May 7th issue, second column, second line, will be found the wording: "it seems to me somewhat difficult." This should read: "it seems to be somewhat difficult."

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 169
Blue Water Gas

The Generator Lining

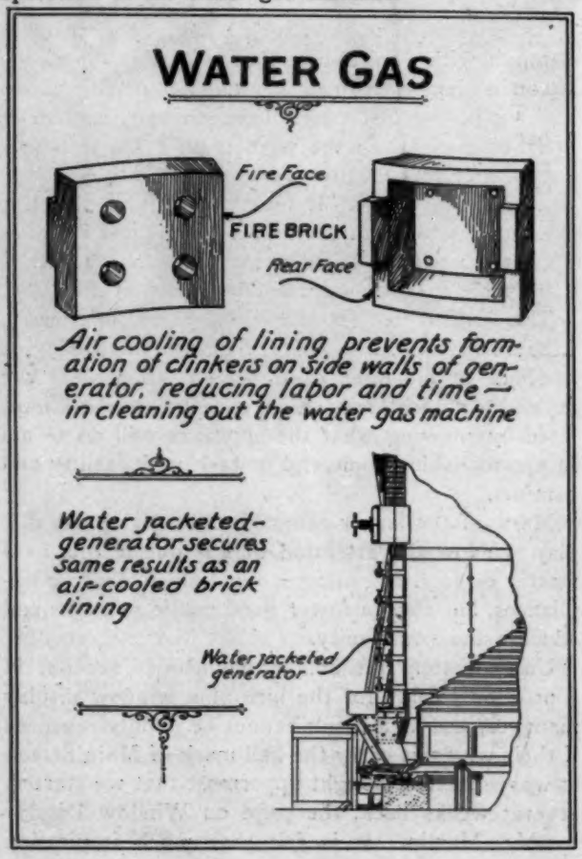
The efforts that have been made to increase the life of the lining of the generator have resulted in the development of improved fire-clay refractories as well as other special lining materials which have been effective to a certain degree at any rate. Mention should be made of the carborundum lining, in which the lining is built up of brick made from compositions containing carborundum. This composition must be properly proportioned in order to overcome the trouble that is caused by the oxidation of the carborundum and consequent expansion. Various tests have been made on carborundum linings and are contained in the 1924 report of the American Gas Association Water Gas Committee as well as in the 1925 report.

It should be mentioned in passing that there are various patented lining materials on the market and all sorts of claims have been made for them. It is not the province of these lessons to go into a discussion of these refractory products, except to mention that they are characterized by being provided with passages for air-cooling and the like. The idea is to prevent the formation of clinker on the side walls of the generator, and this is done by the arrangement of air-cooled brick in the lining of the machine. Various advantages are connected with this practice besides increase in the life of the lining. Thus there may be mentioned the fact that when the side wall clinker, as it is called, is not formed, it is not necessary to let the fire burn down for cleaning.

Water Jacketed Generator

It is also possible to secure the same effect by using a generator which is built with a water jacket surrounding it in a certain portion of its height. There is no question that such a generator will not be troubled with the accumulation of clinker on its sides, but there are other disadvantages connected with its use. For the water will unquestionably remove considerable heat from the generator, which would be lost to the operation, decreasing its thermal efficiency, unless this heat is recovered in the form of low pressure steam.

Various favorable conclusions have been reported by investigators to the American Gas Association on the use of these specially made and patented air-cooled lining brick, and these are summarized to be as follows: In the first place, the life of the lining is increased. The capacity of the water gas machine is likewise increased. Fuel and oil results are improved, which means that less oil and fuel are required for the production of a unit volume of gas. The clinker adhesion to the walls is prevented and this infers less labor required for its removal and shortening of the time spent in clinkering which course must be figured as unproductive time in the operation of the water gas machine.


WATER GAS
Fire Face
FIRE BRICK
Rear Face
Air cooling of lining prevents formation of clinkers on side walls of generator, reducing labor and time in cleaning out the water gas machine
Water jacketed generator secures same results as an air-cooled brick lining
Water jacketed generator

TAKING THE GAMBLE OUT OF BUSINESS

(Continued from page 489)

Yet these things have happened. The prosperity, the very existence, of every industry is dependent upon holding and broadening its market, and upon developing new markets—both in the face of invasion by substitute materials produced by other industries. The prosperity of whole sections of the country, of whole nations, our own included, is dependent upon a similar struggle for markets.

We have an idea that we are a successful business people. So does the rest of the world. But the bitter truth is that we are not making such a wonderful showing in meeting the situation created by the new competition. Satisfactory profits are being made by a few well-managed organizations, while thousands flounder around in the dark, hoping that luck will break for them. It seldom does.

Nearly Half of Our Corporations Show Yearly Deficit

According to my friend J. George Frederick, president of the Business Bourse, forty-three per cent of all our corporations show a deficit each year. The net profit, before taxes, of all American corporations is only five and six-tenths per cent. The dividends paid are only seven-tenths of one per cent on the capitalization of all the country's corporations. How long are we going to remain complacent under such conditions?

The competition in which we are engaged is a battle of the giants. Complacency has no place in such a struggle. Whether we like it or not, we are confronted with a condition that makes the old competition between units of the same industry pale into insignificance. Failure today entails more widespread disaster than ever before. The opportunities for success on a vast scale are more numerous than they have ever been in the history of the world.

If we are to grasp these opportunities and bring them to fruition, it is more than ever essential that we see conditions as they exist, and guard against every adverse factor. The stakes are so enormous that a setback may mean the ruin of an entire industry. Nothing must be left to chance. Business must become, so far as possible, an exact science. We must stop floundering in the dark.

Commercial Research Offers Solution

Commercial research offers us the best means of accomplishing this aim. Research, as applied to production, is not a new development. Already it has done much to exclude the element of luck that once so greatly influenced the manufacture of many commodities.

Up until a short time ago, the leather manufacturer, when he put thousands of dollars worth of hides into his tanning baths, took a chance on bringing out a batch of skins ruined by a defective tanning solution. That sort of thing does not happen any more. Nowadays the leather manufacturer is protected by his laboratories. When he puts his hides into their bath he knows that the bath is right.

Production research plays a leading part in American business. Referring again to figures compiled by J. George Frederick, one twenty-five hundredth part of our corporations make nearly a third of the total profit. Almost every one of these 162 highly profitable corporations operates a research department. Almost all of the remaining 417,259 do not.

Selling Is Still a Gamble

But, although research has taken the gamble out of the production of most commodities, the gamble is still strongly entrenchd when it comes to the selling end of the business. Here, too, however, chance can be largely done away with through proper research. Let me illustrate what I mean.

A Yankee clock manufacturer decided that there was a good market for his clocks in Egypt. He collected specimens of the English clocks sold in the Nile Delta, took them apart, and came to the conclusion that he could make a better clock for less money.

He made his clocks in carload lots, shipped a large consignment to his agent, and waited for more orders to roll in. But the orders did not materialize. In fact, he heard nothing at all from the agent until, months later, after repeated cables, the agent sent word that he could not give the clocks away. He didn't know why, but there was no market for them.

The manufacturer caught the first boat. Once on the ground, it did not take him a week to discover the hitch. To the natives a clock was as much a matter of pride and show as a particularly fine phonograph or radio is to us. When he had a clock he wanted his neighbors to know it.

The English clocks had a tick that told the world they were on the job. In the opinion of the natives that was the real function of a clock. Without that quality, a clock meant little to them.

The American manufacturer shipped the whole consignment of clocks back to the States. Into them he put a tick that made the tick of the English clocks seem about as noticeable as a whisper in a tin-can factory—and his clocks began to sell faster than he could produce them.

The commercial research resorted to by the clock manufacturer was of a very simple nature. It included nothing more than a quick study of the market—a study that, of course, should have been made before he started production.

His action, however, indicates the direction in which commercial research must more and more be turned. Industry must follow the progressive leaders who have extended their research far beyond the perfection of processes involved in the manufacture of the product.

Improvement in methods of production will naturally remain one of the chief objectives. It is to the advantage of every producer to turn out the best possible article at the least cost. Further,

(Continued on Page 497)

HOME CANNING LESSONS

Home service workers tell us it is not too early to begin the home canning campaigns and demonstrations. It is their thought that, now that early fruits and berries are to be had, the home service department should open up its guns in order that the home manager will get the idea thoroughly implanted in her mind that home canned fruits are wholesome, by the time that the market is at its

peak and fruit and berries are plentiful at reasonable prices. It is said that folks are eating more green vegetables this year than they have for many years. That is a good sign; they are getting tired of prepared and predigested foods and spring finds the old engine calling for more of nature's fuels, salts, iron, phosphates—all saturated with sun light and heat.

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HOME SERVICE DEPARTMENT OF PROVIDENCE GAS COMPANY USES A GAS REFRIGERATOR

All winter we have been using gas refrigeration, trying out this new application of gas to see whether or not the housewives of Providence would like it. We, in the Home Service Department, find it economical (it costs only half what the average home pays for ice each month); it is noiseless, the range of temperature can be controlled—thus producing perfect refrigeration—and, best of all, it is absolutely sanitary.

We are told by the manufacturers that the life of this kind of a refrigerator is extremely long, and that as there are no moving parts it seldom gets out of order.

We freeze mousses and sherbets in ours by simply putting the mixture in the container and leaving it in the freezing compartment. Another thing we like is the ice cubes for iced drinks.

CLEANING VARIOUS METALS

Tin: Use whiting mixed to a stiff paste with water or ammonia; brush off all powder when dry and rinse in warm water.

Zinc: Zinc must be thoroughly washed with warm water and soap, then well dried, and next carefully rubbed all over with a cloth dipped in either kerosene or turpentine. Wash and dry well.

Silver: In an enamel kettle of boiling water place one teaspoonful each of salt and either baking or washing soda for each quart of water used. Place in bottom of kettle the silver-cleaning plate of aluminum alloy. Be sure it is scoured clean. Next add the flat silver piled loosely and leave in for five minutes. Keep water near boiling. Remove and wash well in warm water and soapsuds, rinse, dry and rub with a soft polishing cloth.

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CLIFF DWELLERS, CANS AND COOKING

Folks who live in apartment houses, and they are, by and large, young couples, offer a big field for the home service department to do a little educational work. These cliff dwellers in the majority of cases eat out of a can or a paper from the corner "food foundry." The food from this source is cooked in quantity, and while quality may be O. K., it is undesirable because of pre-cooking. The human engine needs more of a different kind of fuel than it

is possible to get from these "food foundries." The home service department might build up a list of these apartment house dwellers and visit them and also send information to them relative to the value of more home-cooked foods. In cases where it is found that both man and wife are employed and "have no time to cook" the home service department might suggest ways and means of employing the oven heat regulated range, even if the foods have to be cooked in the evening while the home man-

ager is out enjoying a movie. The field is a growing one and it seems there should be several ways to educate these people to the value of proper home-cooked foods. This is just an idea.

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FOOD FOR THOUGHT FOR HOME SERVICE MANAGERS

(Abstracted from one of Anna Barrow's Wednesday Broadcastings)

"The simplest home life may offer hospitality once a week to some friend or group of friends without adding much expense to the family food budget.

"It is not the cost or variety of food that we ourselves most appreciate, but the welcome."

"There is no social education better for children than to help in entertaining their parents' friends as well as those of their own age. This is the way that family friends may be continued through several generations.

"Because child labor under bad conditions is wrong, we sometimes free children from all share in home responsibilities, hence they become unreasonable in demands upon the home and seek pleasure elsewhere.

"The Sunday dinner often is too good and demands great expense of money from the food budget and energy from some of the household. Sunday should be a day for true rest and recreation, the upbuilding of body, mind and spirit.

"A dinner which may be mainly prepared the previous day is desirable, with some specially choice dessert, not so abundant or rich that it gives a Monday headache. Then the supper with a few friends with attractive dishes but no unduly indigestible combinations. Often we read menus and recipes for Sunday suppers apparently designed to benefit grocers and physicians rather than those we ask to partake with us.

"Beware of having too many dishes of the same type or letting the same meat or vegetable appear in more than one course. The white sauce should not follow a cream soup even for a vegetable, nor would we enjoy a soft custard sauce for a pudding when a cooked salad dressing has just been served. Some advise care in contrasting white and brown courses.

"Just how far we should yield to likes and dislikes in ourselves or others is a great question. Why should not our appetites for food receive some training as well as taste in clothing, or for books or music?

"The most popular foods, doubtless, are those we have known from childhood—largely habits formed when hunger was keen because of rapidly growing bodies. Yet such foods may be quite unsuitable for middle age or for the quieter lives of the older members of the family. Next in popularity are the foods we have first met where surroundings were pleasant, congenial friends, noiseless service, with all the attractions possible in a luxurious dining room, or an out-of-doors meal. But excessive service, gaudy table fittings, and loud music that prevents conversation might easily give a tired person a distaste for costly food, however well cooked and served.

"Some women say they have too much to do to think ahead, but it is only by keeping ahead and studying every phase of our conditions that we can gain time for the true family life or save on regular expense for greater enjoyment.

"The refrigerator is almost as important as the range in our summer housekeeping, though that is hardly true in winter. Dry foods, having little water in them, keep well under adverse conditions. That is nature's way of keeping one year's seeds over to grow the next season. Moisture and warmth stimulate growth, and also hasten decay, and hence the need of keeping moist foods cold.

"A little ice cannot keep large quantities of food.

"Do not expect food to keep more than a day or two in the hottest weather."

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INTERESTING DEMONSTRATION ON "THE INVALID TRAY"

Other Brooklyn Union Gas Company Home Service Activities

"The Invalid Tray" was the subject of a very interesting demonstration presented by the Home Service Division to the Friday afternoon class at Remsen Street. The dishes, although suitable for a convalescent and daintily arranged on a tray, were equally appealing to a person in perfect health. This was apparent when the deliciously broiled lamb chop, puffy baked potato, puree of peas and carrots, and firm golden custard were served to the audience.

Several hundred women heard Miss Barrow's delightful lecture at the Academy of Music. A short demonstration by the Home Service Division preceded the lecture, and at the conclusion, refreshments prepared by the Home Service girls were served to the audience from a beautifully decorated table.

Soups and appetizers were prepared for the Williamsburgh class on Tuesday and Wednesday. The ever popular clam chowder, with Canape Lorenzo, stuffed prunes and stuffed celery, were prepared and served.

The Girl Scout officials, telling of the enthusiastic approval of Home Service classes for girls, expressed by mothers of Scouts, asked for a class in Ridgewood. It has proved so difficult to handle three Saturday morning classes at the present time that this class will probably not be offered until fall. Also Boy Scout officials in Queens have asked that a class be organized in Newton, beginning May 7.

"A May Basket" was the subject of the demonstration at Newton. Sandwiches of various kinds, devilled eggs, potato salad, baked custard and orange cake with orange frosting were prepared and packed in a capacious basket.

The Home Service Division participated in the opening of a model house at Sunnyside Gardens. Punch and cookies were served to about fifty club women and the preparation of cookies was shown.

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

HYDROCARBONS IN LOW TEMPERATURE GAS

A RESINOUS non-coking coal was carbonized in accordance with the low temperature process by the internal application of heat with superheated steam. The method was of the continuous type and the steam entered at a temperature of 700 degrees C and passed up through the descending charge. The highest temperature noted was 725 degrees C. The gas produced was analyzed in order to determine the hydrocarbons present in it.

The analysis was carried out in accordance with the modified Shepherd-Porter method. A fractional analysis of the gas is given below:

	Per Cent
Carbon dioxide	11.0
Hydrogen sulfide	1.0
Nitrogen	1.1
Oxygen	0.0
Hydrogen	33.5
Carbon monoxide	11.7
Methane	32.4
Ethylene	0.92
Acetylene	0.00
Ethane	3.8
Propylene	0.87
Propadiene	Undetected
Methylacetylene	0.00
Propane	1.33
Cyclopropane	Undetected
Unsym-dimethylethylene	0.21
Sym-dimethylethylene	0.18
Ethylethylene	0.12
1,3-Butadiene	0.002+
n-Butane	0.28
Isobutane	0.09
Methylpropadiene	Undetected—less than 0.003
Ethylacetylene	0.00
Methylcyclopropane	0.00
Cyclobutane	Undetected—less than 0.05
Sym-dimethylacetylene	Undetected
Higher hydrocarbons	Not studied

This is a complete analysis and shows the presence of many hydrocarbons. The methods that were used in making the analysis are described in detail in the original article, published in Industrial and Engineering Chemistry, April, 1927, pages 488-491.

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FIRE-RESISTANCE OF REFRACTORIES

AN investigation was made and reported in Feuerfest, 1926, number 6, pages 58ff., on the relation between the fire resistance, the softening under load and the composition of fire-resistant materials. In all former investigations on the effect of load on the softening point of fire-resistant products it was found that the richer the substance was in clay, the greater the difference between the melting point (determined by the cone method) and the softening point under load at high temperatures. The results that the present investigator found indicated first that in the case of a fire clay, which was heated under constant load, the temperature of initial softening was independent of the proportion of chamotte contained in the mass. In the second place the temperature differential between initial and full softening is different, and that the temperature, at which complete softening took place, was always lower in the case of materials that contained chamotte than otherwise. The results indicated that for the most part the degree of softening under load at a given temperature is dependent on the chamotte content, which means that the greater the chamotte content the quicker and the more intensive the softening of the fire-clay.

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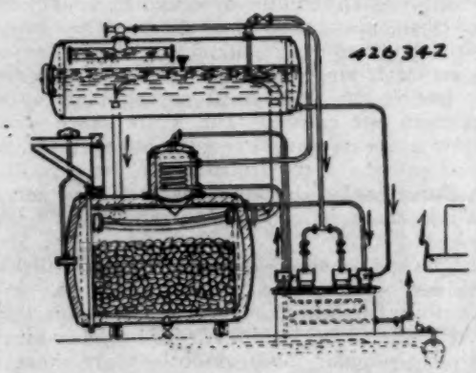
COKE COOLING AND HEAT RECOVERY

THE apparatus which is shown in the accompanying illustration is patent in German Patent No. 426,342. It is characterized by the fact that a system of pipes, functioning as a steam gen-



erator, are located in the coke cooling chamber, which can be closed and which is filled with compressed steam. A feed-water heater is located separately from the principal chamber, ,the connection being through a perforated wall. The heater is built in such a fashion that, due to the condensation effect, a perfect separation of steam and water gas in the gaseous mixture is effected on the pipes of the steam generator as well as on the heater.

TAKING THE GAMBLE OUT OF BUSINESS

(Continued from page 493)

any achievement in this line usually reacts to the benefit of the consumer through a reduction in the price he has to pay.

Consumer's Desires Must Be Studied

The point I want to make is that the commercial research of the future will have to be devoted to an increasing extent to the market—to increasing the buyer's receptivity to the product. The needs, desires, whims and benefit of the consumer must be held always in view. As a consequence, there are two main paths that commercial research will have to follow in the years ahead.

First of all, a great deal of study will have to be given to the use of the commodity. There is no progressive manufacturer who does not realize that his responsibility ends only when his product is placed in proper use.

Even though the product may be entirely out of his hands, the manufacturer's future sales will be adversely affected if the consumer does not know how to use the product; or if, because of certain remediable factors, the consumer is unable to realize upon its full potentialities.

Secondly, attention must be devoted to discovering new and broader uses. As long as natural markets existed, it was all very well to concentrate upon supplying those markets. But we can never hope to see that condition return.

With natural markets no longer to be found, when every market is subject to encroachment by substitute materials, the manufacturer's best assurance of continued progress lies in the penetration of new markets opened up to him by the development of new uses for his commodity, or by alterations in it to better meet the demand.

Any attempt to influence the use of a commodity, to invade a hitherto closed market, or to open up a previously undiscovered one, necessarily demands the expenditure of large sums of money—sums too big to gamble with. Here, in particular, the element of chance must be reduced to an absolute minimum.

Market Research Must Be Placed on Higher Plane

Already research has shown what it can do in these directions. The record is an impressive one. It remains only for industry as a whole to take advantage of the possibilities it offers. Market research must be lifted to a position equal to that held by research devoted to production processes.

Research of the nature referred to, as conducted up to the present time, may be divided into two classes—research conducted by individual organizations, and co-operative research organized and financed by the whole industry for the benefit of all its members.

Take the Bakelite Corporation. Research has enabled this company to place its products on the market as substitute for wood, glass, amber, celluloid, fibre, rubber, shellac, gelatin, horn, ivory, metal, paper, porcelain, rawhide and vegetable ivory. There are a score of uses for the product today as contrasted with its few uses only a little while ago.

About 1906 the Bethlehem Steel Company started rolling, for the first time in this country, a wide-flanged beam and column section for structural purposes. There was a direct saving in cost for the buyer through the use of a column section that required a minimum of shop work. Handbooks were prepared to assist the engineer and architect in using the new shapes to the best advantage.

This spring the Carnegie Steel Company began to turn out a new type of structural steel beam and column section. Even more recently, the United States Steel Corporation has announced the appointment of George G. Crawford, president, the Tennessee Coal, Iron and Railroad Company, as chairman of a committee to formulate a plan for the organization of general research work on a large scale.

Both of these latter developments should tend to further increase the use of steel. Both are fine as far as they go. But they do not go far enough. Even the decision by one of the greatest industrial organizations in the world to extend its research for the benefit of itself and its subsidiaries is only a part of what is needed if the steel industry is to increase its tonnage output and find buyers for it.

(To be concluded in May 21st issue.)

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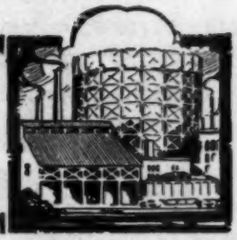
"Come on You Young Uns"
Mother Earth must love the youngsters! So, at least, one would judge from the way she clings to their little hands and faces.
Is your home blessed with children? If so, there is need every day—and several times each day — for hot water and plenty of it. With a gas-fired water heater you can draw all you want right from the faucet.
A gas-fired water heater gives so much in comfort for so little in cost—no more than the price of a newspaper for a steaming tubful of luxurious hot water!
Own a Gas-Fired Water Heater
From our complete stock of water heaters, you can select the type and size best fitted to your needs. Come in, or mail the coupon. Prices include delivery and city permit; also gas, water and flue connections. Monthly payments extended to Chicago residents.
The Peoples Gas Light and Coke Company
You Can Do It Better with GAS
Water Heaters are on display at the following offices:
DOWNTOWN
SOUTH
NORTH
WEST
The Peoples Gas Light and Coke Company
122 So. Michigan Avenue, Chicago, Ill.
Name
Address
Automatic Gas-fired water heaters that repay their cost on coal or low as $123.50 installed.
Tank type water heaters as low as $62.25 installed. Ask about special coupon that covers 50 the month on tank heaters.

NEWS OF THE GAS INDUSTRY



New York and Richmond Gas Co. Files New Rate Schedule

Albany.—The New York and Richmond Gas Company has filed with the Public Service Commission a new schedule of rates for gas in the Borough of Richmond.

The present rate is as follows: First 100,000 cu. ft. per month, $1.45 Per M.; next 200,000 cu. ft. per month, $1.40 per M.; next 300,000 cu. ft. per month, $1.35 per M.; next 400,000 cu. ft. per month, $1.30 per M; all over 1,000,000 cu. ft. per month, $1.25 per M.

The new rate is as follows: First 500 cu. ft. or less per month, net $1.00, gross $1.10; next 4,500 cu. ft. per meter per month, net $1.40, gross $1.45 per M.; next 5,000 cu. ft. per meter per month, net $1.35, gross $1.45 per M; next 15,000 cu. ft. per meter per month, net $1.25, gross $1.35 per M; next 25,000 cu. ft. per meter per month, net $1.10, gross $1.20 per M; next 50,000 cu. ft. per meter per month, net $1.00, gross $1.10 per M; over 100,000 cu. ft. per meter per month, net $0.90, net $1.00 per M. Minimum charge per meter per month, net $1.00, gross $1.10. A discount of 10 cents per M cu. ft. is allowed for prompt payment.

The company alleges that the present rate has resulted in an average charge for 1926 of $1.4437 per M cu. ft. and if conditions in 1927 were precisely the same as in 1926, the average revenue produced by the new rate would be approximately $1.47 per M cu. ft. It states that its present revenue is inadequate and does not yield an adequate return on the company's property; that the present rate does not distribute the cost of service as equitably as it should be done, and that the average cost of serving each customer is $1.73 per M cu. ft.

The new rate becomes effective on May 1.

DATA GATHERED ON NATURAL GAS

Public Service Co. Making Survey to Set Proper Rates for Colorado Users

Denver, Colo.—Installation of the natural gas pipe line from Amarillo, Texas, to Denver is in its embryonic stage, with surveys being made in Denver and other Colorado cities relative to the laying of the pipe line, officials of the Public Service Co. announced.

Data on which to base the request for a natural gas franchise is now being gathered, George H. Shaw, attorney for the company, said.

The survey will determine the number of prospective gas users in the various cities which would be served by the proposed pipe line, the amount needed and the price at which it can be offered to the consumer.

Following the completion of a proposed agreement, city officials and representatives of the various city organizations will be asked to confer on the matter with Public Service officials, Shaw said.

* * *

New Pipe Line Being Run to Miles City

The Hope Engineering and Supply Company are laying a gas pipe line from the Cabin Creek natural gas field to Miles City, Mont. The gas will be used for domestic and industrial purposes and may mean many sales of gas appliances. The Minnesota Northern Power Company will operate it.

Pittston Gas Plant Furnishing Light to Big Clientele

Pittston, Pa.—A local industry which produces a commodity among the most widely used, yet one of which the processes are only vaguely known to the majority of people, was described in a most interesting talk given a short time ago at a Rotary Club meeting by John A. Weiser, manager of the Peoples Light Company of Pittston, who was also recently made president of the Pennsylvania Gas Association. Mr. Weiser said in part:

"A gas company's activities should be divided under four different heads: Manufacturing, Distribution, Sales, Public Relations. I do not wish to convey the idea that these four activities rank in importance in the way I stated them because you must sell the gas before you are able to make it and a company must have good public relations before it can sell its product."

* * *

Empire Gas and Fuel Takes the Lead

While Denver and other Colorado cities are talking about getting the natural gas from the Texas Panhandle field, the Cities Service, through its subsidiary the Empire Gas and Fuel Company, are already laying the pipe line to supply Kansas City and various cities between the field and the big town on the Kaw with this gas. It is a fifteen million dollar project.

* * *

Denver Man Goes Up With Doherty

Lawrence B. Card, a graduate of the Colorado University, who has been in the New York office of Henry L. Doherty & Company for about a year, has been advanced to the office of superintendent of the gas plant at Bristol, Va.

LOWER RATE FOR BIG GAS USERS

Broad River Power Co. Lowers Charge for 25,000 Feet

Columbia, S. C. — The Broad River Power Company, with the approval of the South Carolina Railroad Commission, has reduced its industrial gas rates in Columbia for customers using 25,000 or more cubic feet of gas per month.

The new reduction, which has already gone into effect, was made in order to give such commercial establishments as hotels and restaurants and industrial business houses, which use gas in large quantities for fuel, the benefit of lower rates. The old gas rate in Columbia provides for the payment of $1.50 for consumption over 30,000 cubic feet of gas per month, whereas the new schedule provides for a reduction not only for this amount, but continues to reduce in steps to $1.10 per thousand cubic feet for consumers using over 100,000 cubic feet per month.

The minimum monthly charge for gas remains at $1.00. The discount of ten cents per thousand cubic feet will be continued, provided the bills for gas used are paid within ten days of the date rendered, as heretofore.

According to officials of the Broad River Power Company, the rates in Columbia for artificial gas is the lowest in any city or town in the South having the same number of customers as the gas company in the Capital City.

In the near future the Broad River Power Company plans to put on a campaign for commercial and industrial gas consumers in Columbia.

The new gas rates put into effect by the company are as follows:

First 10,000 cubic feet, $1.60 per thousand; next 15,000 cubic feet per month, $1.55 per thousand; next 20,000 cubic feet, $1.45 per thousand; next 30,000 cubic feet, $1.25 per thousand, and all over 100,000 cubic feet, $1.10 per thousand. The discount of ten cents per thousand cubic feet will be allowed from these rates for prompt payment.

The old schedule of rates of the company were as follows:

Convention Calendar

19-21—Indiana Public Utility Association. Annual meeting Gas Section, French Lick Springs Hotel, French Lick. E. J. Burke, secretary, 1270 Peoples Gas Bldg., Chicago, Ill.

25-28—New York Regional Sales Conference. Annual meeting, Lake Mohonk Mountain House, Lake Mohonk, New York.

31 & June 1—American Gas Association. Production Conference of Technical Section, Detroit, Mich.

June

16-17—Canadian Gas Association. Annual convention, King Edward Hotel, Toronto, Canada. G. W. Allen, secretary-treasurer, Toronto.

21-22—Empire State Gas and Electric Association. Annual meeting, Commercial Section, Elmira, N. Y.

July

5-7—Michigan Gas Association. Annual convention, Grand Hotel, Mackinac Island, Mich. Albert G. Schroeder, secretary-treasurer, Grand Rapids, Mich.

First 10,000 cubic feet per month, $1.60 per thousand; next 20,000 cubic feet per month, $1.55 per thousand, and all over 30,000 cubic feet, $1.50 per thousand.

* * *

Joint Meeting of Arizona Utilities Association and Pacific Coast Gas Association at Flagstaff, Arizona

Thursday, May 26

9 a. m.—Registration.

10-12—Business session and appointment of committees.

12:15-1:30 — "Get Acquainted" luncheon.

2-2:45—Paper, "Recent Developments in Absorption Refrigeration," by some member of the P. C. G. A.

2:45-4—Two papers: 1, "Should the Utility Have an Active Merchandising Policy?" by Al Moriarty, new business manager of the Central Arizona Light & Power Company, Phoenix. 2, "Should the Utility Refrain from Selling Merchandise?" by Bruce Hannah, manager of the Russell Electric & Machine Company, Tucson.

General discussion.

Friday, May 27

9-10—Paper, "Pentrex Treatment of Poles," by R. H. Felt, Chapin Pole Company, followed by discussion on pole line construction.

10-11—Paper, "Recent Developments in the Electrical Field," by representative of N. E. A.

11-12—Paper, "Recent Developments in the Gas Field," by representative of P. C. G. A.

1-2:30—Paper, "Colorado River Development," by Dwight B. Heard, director of Arizona Colorado River Development Association.

2:30-4—Round table discussion. Talk by Hon. Amos Betts, member of Corporation Commission of Arizona.

4-4:30—Reports of committees.

4:30—Adjournment.

* * *

Citizens Gas Light Co. Elects John J. Quinn President

Quincy.—At a meeting of the directors of the Citizens Gas Light Company, held on April 28, John J. Quinn, vice-president, was elected president, succeeding William B. Nichols. Mr. Quinn came to this company on May 20, 1919, as superintendent and was elected vice-president on July 26, 1923. Mr. Nichols has been actively engaged in the management of the company from its purchase by the present interests twenty-one years ago. He has served as president and general manager for the greater portion of this time. Mr. Nichols was elected vice-president to succeed Mr. Robert Grant, deceased.

In addition to these two, the directors are J. L. Richards, Boston; E. M. Richards, New York; S. H. Couch and N. G. Nickerson, Quincy.

Mr. C. A. Alden was elected treasurer to succeed Mr. H. C. French, who died recently.

Gas Men Should Tune-in on this Ruud Program

When the new Ruud-built Autohot Automatic Storage System is introduced on Monday, May 16, to listeners of the National Broadcasting Company's blue net work of stations, it will be the first case on record of the dedication of any gas appliance by radio.

The Ruud Manufacturing Company of Pittsburgh, Pa., sponsors of the series of Ruud Light Opera Hours, has arranged for the appearance on this program of Walter C. Kelly, the famous "Virginia Judge," who has, in his vaudeville tours, visited practically every city in the country, and who also enjoys a large following through his numerous phonograph records.

An augmented orchestra will be present under the direction of Walter C. Haenschen, and with them the two well-known soloists, Erva Giles, soprano, and Frank Munn, tenor.

In all Ruud Light Opera programs this year, special mention has been made of the utility of gas as the ideal fuel for water heating.

The May 16th program follows:

Ruud Light Opera Hour Autohot Dedication Program, Monday, May 16, at 9.30 P. M., Eastern daylight saving time.

1. Gypsy Serenade. Orchestra.
2. Mystic Beauty. Orchestra.
3. My Faithful Stradivarius from "Sari." Tenor Solo.
4. Indian Summer. Herbert. Orchestra.
5. To the Land of My Own Romance, from "The Enchantress." Soprano Solo.
6. Selections from "Love o' Mike." Kearn. Orchestra and Vocal.
7. Lotus Land. Piano Solo.
8. Tea for Two. "No No Nanette." Tenor and Soprano Duet.
9. In the Shadows. Finck. Orchestra.
10. Spiritual "Everytime I Feel the Spirit." Burleigh. Tenor Solo.
11. Ballet: (a) Pas des Amphores; (b) Pierrette. Chaminade. Orchestra.
12. The First Kiss of Love. Soprano Solo.
13. Floradora. Vocal and Orchestra.
14. In a Chinese Tea Garden. Lang. Orchestra.

Walter Haenschen, Director; Erva Giles, Soprano; Frank Munn Tenor. Added Attraction, Walter C. Kelly, the Virginia Judge.

John I. Blanchfield Addresses Empire State Gas and Electric Association Convention

Niagara Falls, N. Y.—At the annual spring convention of the Empire State Gas and Electric Association, an organization of the gas and electric utilities of the state, Mr. John I. Blanchfield, statistician of the Brooklyn Union Gas Company, spoke on the subject of the relations of the utilities with the Public Service Commission. Mr. Blanchfield pointed out the advantages to be gained by wholehearted co-operation on the part of the utilities with the commission.

"The accuracy with which investment costs are recorded," said Mr. Blanchfield, "will aid the commission in its investigation in connection with its approval of issues of securities representing the investments. This will have the twofold effect of stabilizing the utility securities as an investment, and at the same time permit the company to sell its service at the lowest rates possible.

"The subject of value of utility property is one discussed in the columns of every newspaper today. We find editorial comment as well as the opinion of jurists, economists and financiers, in which are expressed the many divergent views on this perplexing problem. Accurate records of cost will have the value of eliminating all doubt as to one element in fixing value, that is, the original cost, and will further facilitate the fixing of values at any future level of prices."

Movie Reels on Welding and Cutting

Chicago.—The Gas Products Association, heaving headquarters at 140 South Dearborn Street, Chicago, and composed of manufacturers of oxygen, acetylene, hydrogen, welding and cutting apparatus, accessories, supplies, etc., located throughout the United States, have recently completed two reels of welding and cutting films.

These illustrate the oxy-acetylene welding and cutting processes as they are universally used for repairs to broken metal parts; for cutting heavy risers from steel castings; for repairing larger sections of cast iron in connection with heavy presses; in welding extremely light parts, such as the plates for radio condensers; for repairs on the farm and in the welding shop; the welding and cutting of structural steel; the welding of pipe lines for high pressure gas, and also in connection with buildings, etc.

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Edward F. Davis Now Sales Manager for Insulated Products Corporation

Mr. Edward F. Davis, formerly engineer with the Celite Products Company for nine years, has joined the Insulated Products Corporation, 280 Madison Avenue, New York, as sales manager, where he will handle a complete line of heat and cold insulation, where any problem from refrigeration to high temperature insulation can be taken care of.

The Insulating Products Corporation, formerly handling the sales of Weber's No. 48 Insulating Cement, has now extended their field to include a complete line of insulating materials from mineral wool and cork for refrigeration to Diamite (diatomaceous earth), Insul-Aid and Diamite Insulating Brick for high temperature insulation up to 2,500 deg. F. They are also handling a complete line of Diamite (diatomaceous earth) for filtration, fillers, and an admixture for concrete, 85 per cent magnesia, felt, asbestos products, hard finish cement, Silcar (silicon carbide), refractory and high temperature cement.

Brooklyn Union Gas Co. Engineer Speaks on "The Control Age"

Mr. Theodore B. J. Merkt, industrial engineer of the Brooklyn Union Gas Company, addressed the Laboratory Club of the company at 197 St. James Place, Monday, May 2. He took as his subject, "The Control Age."

"Present day manufacturing methods," said Mr. Merkt, "demand a uniform quality of product whether the output is small or large. The ability, therefore, to control production in order to duplicate a standard product time after time is demanded of apparatus used in such production.

"Gas," continued Mr. Merkt, "can be easily controlled automatically to perform each of 5,000 uses. The metal industries of Brooklyn are large users of gas in the melting of brass, lead, tin, aluminum and die casting metals, because they can obtain quantity production of a high quality with automatic control. The heat treating of steel, which is dependent upon extremely accurate temperature control is almost exclusively performed by gas in Brooklyn.

"The chemical and food industries are called upon to duplicate daily the products which have won for them high favor in the community. Bread, pies, cocoa, coffee, smoked fish and other products will increase in consumption only as their production is based upon high quality which is always the same.

"The hotels and restaurants of Brooklyn are known far and wide for the delicacies which satisfy our appetities. Here again gas is called upon to add the finishing touch to a high quality food, which when brought forth from the oven is just right, because the heating has been under steady control.

"The home of today is joining with industry in celebrating the control age. The automatic gas range has added as its allies the incinerator, the clothes dryer, the ironing machine, the house heating boiler, water heater and the recently developed gas refrigerator, which has no moving parts and is entirely noiseless. The all gas home of today with its automatic controls means more comfort and pleasure to the whole family."

Slides were shown duplicating scenes in the various industries of Brooklyn as well as in the modern homes which are using the features outlined above.

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New York Regional Sales Conference

Final program for Lake Mohonk, New York, May 25-28, 1927.

Thursday, May 26, 1927, 10 A. M.:

Presiding: G. M. Karshner, chairman, Consolidated Gas Company of New York, New York, N. Y.

Opening Remarks—G. M. Karshner, chairman, Consolidated Gas Company of New York, New York City.

Address of Welcome—T. R. Beal, Central Hudson Gas and Electric Corporation, Poughkeepsie, N. Y.

A message from the A. G. A.—Alexander Forward, Managing Director, American Gas Association, New York, N. Y.

Today's Commercial Opportunities in the Gas Business—R. M. Searle, Rochester Gas and Electric Corporation, Rochester, N. Y.

Wholesaling Blue Star Homes—J. E. Davies, the Peoples Gas Light and Coke Company, Chicago, Ill.

Achieving a New Record in Water Heating—B. H. Gardner, Northern Indiana Gas and Electric Company, Hammond, Ind.

Large Volume Water Heating—Anthony J. Peters, Consolidated Gas Company of New York, New York City.

Increasing the Load by Effective Salesmen's Compensation—E. R. Acker, Central Hudson Gas and Electric Corporation, Poughkeepsie, N. Y.

Methods of Training Domestic Salesmen—A. W. Humm, Standard Gas Equipment Corporation, New York, N. Y.

Friday, May 27, 1927, 10 A. M.:

Presiding: W. A. Morris, Kings County Lighting Company, Brooklyn, N. Y.

Selling Gas in a Growing Territory—Andrew J. Gonnoud, Kings County Lighting Company, Brooklyn, N. Y.

Selling Gas Through Employee Co-operation—J. J. Burns, the Laclede Gas Light Company, St Louis, Mo.

The Importance of the Local Market Survey—Professor G. B. Hotchkiss, New York University, New York City.

Home Service—The Good It Does the Gas Company—Mrs. M. T. P. Wardman, Brooklyn Borough Gas Company, Coney Island, N. Y.

What's Ahead in Domestic Cooking—A. W. Baker, Kansas City Gas Company, Kansas City, Mo.

Is the Oven Heat Control a Load Builder?—J. L. Farrell, Public Service Company of New Jersey, Passaic, N. J.

Problems in Selling and Installing Gas Refrigeration—N. T. Sellman, Consolidated Gas Company of New York, New York City.

Saturday, May 28, 1927, 10 A. M.:

Presiding: E. R. Acker, Central Hudson Gas and Electric Corporation, Poughkeepsie, N. Y.

Selling Gas for House Heating—G. I. Vincent, Syracuse Lighting Company, Syracuse, N. Y.

Selling Gas in the Fireplace—F. D. Tansey, Brooklyn Union Gas Company, Brooklyn, N. Y.

Building the Incineration Load—H. D. Valentine, Central Hudson Gas and Electric Corporation Poughkeepsie, N. Y.

Marketing Gas in the Home Laundry—A. M. Evans, Federal Electric Company, Chicago, Ill.

The Measure of a Man—Robert Wall, United Thrift Plan, New York, N. Y.

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Huge Coke Order

The Columbia Steel corporation has entered into contract with the International Smelting and Refining Company and the United States Smelting and Mining Company to furnish them approximately 400 tons of coke daily for five years. To fulfill the contract the Columbia at its Ironton, Utah, pig iron plant will erect thirty-three additional coke ovens. This will cost, with improvements at its coal mines, about two million dollars, but the coke contract will call for about five millions.

Iowa Public Service Co. Acquires Central Iowa Power & Light Co. and Iowa Light, Heat & Power Co.

New Company Under U. G. I. Management

Announcement is made that on May 1 the Iowa Public Service Company, recently organized, acquired the Central Iowa Power & Light Company and the Iowa Light, Heat & Power Company. The new company is directly under U. G. I. management.

The merged companies were under U. G. I. supervision and control, operating in the same and adjacent territories and their consolidation into one company makes a more compact and efficient organization, both from the standpoints of operation and financing.

The Iowa Public Service Company serves 200 communities with electricity and four with gas in thirty-four counties of western and north central Iowa, its territory covering an area of approximately 17,000 square miles—one of the richest agricultural sections in the world, the principal products being corn, wheat, oats, hogs and cattle. These communities, with a total population of approximately 500,000, include Sheldon, Cherokee, Quimby, Storm Lake, Le Mars, Sac City, Ida Grove, Rockwell City, Audubon, Rutland, Emmetsburg, Spirit Lake, Eagle Grove, Hampton, Charles City and Waterloo. A small water and steam heat business will also be carried on.

Practically all of the various generating stations are inter-connected and in addition the territory is tied in with the Big Sioux power plant of the Sioux City Gas & Electric Company, Sioux City, Ia., by a 66,000 volt high tension transmission line.

The officers of the Iowa Public Service Company are: D. M. Sterns, president; G. A. Neal, F. J. Rutledge, W. H. Taylor, vice-presidents; W. N. Porter, secretary; H. B. Maynard and Johns Hopkins, assistant secretaries; L. W. Wade, treasurer; E. MacMorris and J. B. Townsend, 3rd, assistant treasurers.

The directors are: W. W. Bodine, G. W. Curran, P. H. Gadsden, J. T. Hutchings, F. J. Rutledge, D. M. Sterns and W. H. Taylor.

The local headquarters of the new company is Fort Dodge, Ia.

Gaylord B. Buck Succeeds Charles A. Semrad

Gaylord B. Buck has been appointed general new business manager of the Public Service Company of Colorado to succeed Charles A. Semrad, who was transferred to be vice-president and general manager of the St. Joseph Railway, Light and Power Company, St. Joseph, Mo.

Commenting upon Mr. Buck's appointment, Vice-President and General Manager Clare N. Stannard said:

"Throughout the organization of the Cities Service Company, Buck is recognized for his ability in organization work and as a sales manager. Having been connected with the Public Service Company of Colorado for the past few years, we have many evidences of the acquaintanceship of Buck with the problems of Denver and the State of Colorado."

Mr. Buck came to Denver in 1924 from Durham, N. C., where he had been in charge of the new electric division. Previous to that he served in various executive positions for the Cities Service at Amarillo, Texas, and Mount Vernon, Ill.

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Associated Gas & Electric Co. Plans to Increase Shares

Albany. — Associated Gas and Electric Company, Ithaca, N. Y., has filed a certificate in the Office of the Secretary of State increasing its number of shares from 3,200,000 shares non par value to 3,700,000 shares non par value. J. T. Taaffe, Albany, N. Y., is attorney for the corporation.

First Annual Production Conference of the American Gas Association

New York, N. Y.—The first annual production conference, sponsored by the carbonization and water gas committees of the American Gas Association, will be held at the Book-Cadillac Hotel, Detroit, Mich., May 31 and June 1.

A representative attendance of production engineers is expected at this conference, since it follows closely the precedent established by the distribution conferences that have proved so popular and valuable.

An interesting program covering important phases of production problems has been arranged for consideration and discussion at the two days' session. The summary presentations will be based on experience and data that have been gathered from engineers from all parts of the country. All types of gas-making equipment will be covered.

Two of the papers will be based on work done at the U. S. Bureau of Mines in connection with research on coal and coke. The report on present production methods and that on research on utilization of mixed gases will be progress reports on problems assigned to the production committees by the A. G. A. Committee which is making an engineering and economic survey of the manufactured gas industry.

All planning to attend are urged to make their reservation direct to the hotel, being sure to mention the production conference in their letter.

R. G. Porter, Philadelphia Suburban Gas and Electric Co., Chester, Pa., is chairman of the carbonization committee, and Henry Fink, Detroit City Gas Co., Detroit, Mich., is chairman of the water gas committee. Mr. Porter is chairman of the joint committee on the production conference.